IN THE U.S. PATENT AND TRADEMARK OFFICE

Application No.: 10/613,103

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Applicant: H. A. Liu

Group Art Unit: 2616

Examiner: Wanda Z. Russell

Title: METHODS AND DEVICES FOR CREATING AN ALTERNATIVE PATH FOR A BI-DIRECTIONAL LSP

Attorney Docket: 129250-001018/US

APPELLANT's BRIEF ON APPEAL (Corrected)

MAIL STOP APPEAL BRIEF - PATENTS
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

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APPELLANT'S BRIEF ON APPEAL

I. REAL PARTY IN INTEREST:

The real party in interest in this appeal is Lucent Technologies Inc. Assignment of the application was submitted to the U.S. Patent and Trademark Office and recorded at Reel 014271, Frame 0372.

II. RELATED APPEALS AND INTERFERENCES:

There are no known appeals or interferences that will affect, be directly affected by, or have a bearing on the Board's decision in this Appeal.

III. STATUS OF CLAIMS:

Claims 1-25 are pending in the application, with claims 1, **8,** 11, 16, 18, 23 and 25 written in independent form.

Claims 1-25 were rejected under 35 U.S.C. §103(a) based on U. S. Patent Publication No. 2003/0063613 to Carpini et al ("Carpini") in combination with U.S. Patent No. 6,895,008 to Enoki et al ("Enoki"). Claims 1-25 are being appealed.

IV. STATUS OF AMENDMENTS:

A Request for Reconsideration ("Request") was filed on March 25, 2008. In an Advisory Action dated April 30, 2008, the Examiner stated that the Request was considered but did not place the application in condition for allowance.

V. SUMMARY OF CLAIMED SUBJECT MATTER:

(i). Overview of the Subject Matter of the Independent Claims

The present invention is directed at the re-routing of traffic in a communications network that is traveling in both directions of a bi-directional LSP to alternative paths using the same network elements. More specifically, the present invention creates an alternative path in the backwards direction of a bi-directional LSP to permit traffic to continue to flow in the backwards direction when a fault occurs. Independent claim 1 reads as follows (specification citations are in parenthesis):

> **1. A system for re-routing traffic from a bi-directional Label Switched Path (LSP) comprising:**
> **an originating network device operable to:**
> **re-route traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction** [paragraphs 13-15]**; and**
> **transmit a switch over message along the alternate path in the forward direction to a merging network device responsible for re-routing traffic traveling along the bi-directional LSP in a backward direction to the alternate path in the backward direction** [paragraphs 13-15]**.**

Independent claim 8 reads as follows:

> **8. A merging network device operable to: receive a switch over message** [paragraphs 13-15 and 19-21]**; and re-route traffic traveling along a bi-directional LSP in a backwards direction to an alternate path in the backwards direction based on the switch over message**[paragraphs 13-15 and 19-21]**.**

Independent claim 11 reads as follows:

> **11. A method for re-routing traffic from a bi-directional LSP comprising the steps of:**
> **re-routing traffic traveling along a bi-directional LSP in a**

forward direction to an alternate path in the forward direction [paragraphs 13-15]**; and**

transmitting a switch over message along the alternate path in the forward direction to a merging network device responsible for re-routing traffic traveling along the bi-directional LSP in a backward direction to the alternate path in the backward direction [paragraphs 13-15]**.**

Independent claim 16 reads as follows:

16. A method for re-routing traffic comprising the steps of:

receiving a switch over message [paragraphs 13-15 and 19-21]**; and**

re-routing traffic traveling along a bi-directional LSP in a backwards direction to an alternate path in the backwards direction based on the switch over message [paragraphs 13-15 and 19-21]**.**

Independent claim 18 reads as follows:

18. A system for re-routing traffic comprising:

an originating network device comprising:

means for re-routing traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction; and means for transmitting a switch over message along the alternate path in the forward direction to a merging network device responsible for re-routing traffic traveling along the bi-directional LSP in a backward direction to the alternate path in the backward direction [paragraphs 13-15]**.**

Independent claim 23 reads as follows:

23. A merging network device comprising:

means for receiving a switch over message; and

means for re-routing traffic traveling along a bi-directional LSP in a backwards direction to an alternate path in the backwards direction based on the switch over message [paragraphs 13-15 and 19-21]**.**

Independent claim 25 read as follows:

25. A system for re-routing traffic comprising:

means for re-routing traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction;

means for transmitting a switch over message, along the alternate path in the forward direction, for re-routing traffic traveling along the bi-directional LSP in a backward direction[paragraphs 13-15]**;**

means for receiving the switch over message; and

means for re-routing traffic traveling along the bi-directional LSP in a backwards direction to the same alternate path in the backwards direction based on the switch over message[paragraphs 13-15 and 19-21]**.**

In order to make the overview set forth above concise the disclosure that has been included, or referred to, above only represents a portion of the total disclosure set forth in the Specification that supports the independent claims.

(ii). The Remainder of the Specification Also Supports the Claims

The Appellant notes that there may be additional disclosure in the Specification that also supports the independent and dependent claims. Further, by including the specification citations in parenthesis above the Appellant does not represent that this is the only evidence that supports the independent claims nor does Appellant necessarily represent that these citations alone can be used to fully interpret the claims of the present invention. Instead, the citations provide background support as an overview of the claimed subject matter.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL:

Appellant seeks the Board's review and reversal of the rejection of claims 1-25 based on 35 U.S.C. §103(a).

VII. ARGUMENTS:

A. The Section 103 Rejections

Claims 1-25 were rejected under 35 U.S.C. §103(a) based on Carpini in combination with Enoki. Appellant disagrees for at least the following reasons.

Each of the claims of the present invention includes the feature of, among other things, re-routing traffic traveling along a bi-directional LSP in a backward direction to an alternate path in the backward direction. Neither Carpini nor Enoki discloses or suggests re-routing traffic along an alternative path in a backward direction.

As the Appellant presently understands the Examiner's position, the Examiner relies upon Carpini for the disclosure of the claimed re-routing of traffic traveling along a backward direction to an alternate path in the backward direction and upon Enoki for the disclosure of a bi-directional LSP. Thus, the Appellant will direct his discussion of Carpini as to whether or not it discloses the re-routing of traffic traveling in a backward direction to an alternate path in the backward direction.

In general, the claims are directed at backward directed, alternate paths. The specification points out that while traditional MPLS Fast Re-routing techniques are effective in re-routing MPLS labeled traffic in an LSP acting independently relative to other LSPs, when LSPs are bundled together to operate in two directions, such as in bi-directional LSPs, such techniques do not perform well. Further, in MPLS Fast-Re-routing, traffic is re-routed from a forward LSP to a predetermined alternate path. However, because many times there is no predetermined alternate path for a *backward* LSP in a bi-directional LSP, once a failure occurs no traffic is allowed to flow in the *backward* direction. As a result, the bi-directional LSP can no longer operate as a bi-directional LSP; it now operates as a uni-directional LSP (see specification paragraphs [0004] and [0005]).

Thus, the focus in on backward directed, alternate paths.

Turning now to Carpini, the Examiner acknowledges Carpini is not directed to a bi-directional LSP. Rather, it appears to be directed at the use of independent LSPs which may, or may not, travel in opposite directions. As such, generally speaking, Carpini's re-routing techniques do not appear to

address the re-routing of traffic traveling in a backward direction to an alternate path in the backward direction.

More specifically, Carpini appears to be silent with respect to the re-re-routing of traffic in a backward direction. For example, paragraphs [0091] and [0092] discuss the selection of secondary paths which are used to re-route traffic from a primary path upon detection of a fault in the primary path.

As explained, Carpini's focus is on selecting a secondary path that either: (a) shares no resources with the primary path; (b) shares a "minimum number of links with the primary path"; or (c) shares "the least number of nodes with the primary path". Nowhere in this discussion does Carpini indicate that a selected secondary path is in a backward direction, or, for that matter, that the primary path allowed traffic to flow in a backward direction. Again, this is not surprising because Carpini is not directed to bi-directional LSPs.

Nor does Enoki make up for the deficiencies of Carpini. Though it discloses a bi-directional LSP, Enoki does not appear to be directed at re-routing techniques.

Yet further, Appellant notes that the combination of Carpini and Enoki is impermissible because such a combination would require one or both of the references to change their principle of operation. For example, Carpini's principle of operation would have to be changed to use bi-directional LSPs, not independent LSPs. Doing so, however, would most likley mean that Carpini's re-routing techniques would not work in some cases. In more detail, Carpini discloses that source nodes may be used in its re-routing techniques (see paragraphs [0089] and [0092]). However, as pointed out in the specification of the present invention, some bi-directional Fast Re-routing functions do not work at such source nodes.

In sum, because: (1) the combination of Carpini and Enoki does not disclose or suggest the re-routing traffic traveling along a bi-directional LSP in a backward direction to an alternate path in the backward direction, and (2)

the combination of Carpini and Enoki is impermissible, the Appellant respectfully requests withdrawal of the pending rejections.

Conclusion:

Accordingly, Appellant respectfully requests that the members of the Board reverse the decision of the Examiner, withdraw the rejections and allow claims 1-25.

The Commissioner is authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 50-3777 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,
Capitol Patent & Trademark Law Firm, PLLC

By: /John E. Curtin/

John E. Curtin, Reg. No. 37,602

P.O. Box 1995
Vienna, VA 22183
(703)266-3330

VIII. CLAIMS APPENDIX

1. (Original) A system for re-routing traffic from a bi-directional Label Switched Path (LSP) comprising:

an originating network device operable to:

re-route traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction; and

transmit a switch over message along the alternate path in the forward direction to a merging network device responsible for re-routing traffic traveling along the bi-directional LSP in a backward direction to the alternate path in the backward direction.

2. (Original) The system of claim 1, wherein the originating network device is further operable to transmit a second message, along the alternate path in the forward direction, to the merging network device to allow traffic to travel along the bi-directional LSP in the backward direction when a failure is no longer detected.

3. (Original) The system of claim 1, wherein the originating network device is a multi-protocol label switched (MPLS) device.

4. (Original) The system of claim 1 wherein the bi-directional LSP is comprised of an LSP carrying traffic in the forward direction and another LSP carrying traffic in the backward direction.

5. (Original) The system of claim 1 further comprising a merging network device operable to receive the switch over message and to re-route traffic traveling along the bi-directional LSP in the backwards direction to the alternate path in the backwards direction based on the switch over message.

6. (Original) The system of claim 5, wherein, the merging network device is further operable to: receive a second message along the alternate path in the forward direction; and allow traffic to travel along the bi-directional LSP in the backward direction when a failure is no longer detected based on said second message.

7. (Original) The system of claim 5 wherein the merging network device is a MPLS device.

8. (Original) A merging network device operable to: receive a switch over message; and re-route traffic traveling along a bi-directional LSP in a backwards direction to an alternate path in the backwards direction based on the switch over message.

9. (Original) The device as in claim 8 further operable to: receive a second message along the alternate path in the forward direction; and allow traffic to travel along the bi-directional LSP in the backward direction when a failure is no longer detected based on said second message.

10. (Original) The device of claim 8 wherein, the merging network device is a MPLS device.

11. (Original) A method for re-routing traffic from a bi-directional LSP comprising the steps of: re-routing traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction; and transmitting a switch over message along the alternate path in the forward direction to a merging network device responsible for re-routing traffic traveling

along the bi-directional LSP in a backward direction to the alternate path in the backward direction.

12. (Original) The method of claim 11 further comprising the step of: transmitting a second message, along the alternate path in the forward direction, to the merging network device to allow traffic to travel along the bi-directional LSP in the backward direction when a failure is no longer detected.

13. (Original) The method of claim 11 wherein the bi-directional LSP is comprised of an LSP carrying traffic in the forward direction and another LSP carrying traffic in the backward direction

14. (Original) The method of claim 11 further comprising the steps of: receiving the switch over message; and re-routing traffic traveling along the bi-directional LSP in the backwards direction to the alternate path in the backwards direction based on the switch over message.

15. (Original) The method of claim 14 further comprising the steps of: receiving a second message along the alternate path in the forward direction; and allowing traffic to travel along the bi-directional LSP in the backward direction when a failure is no longer detected based on said second message.

16. (Original) A method for re-routing traffic comprising the steps of: receiving a switch over message; and re-routing traffic traveling along a bi-directional LSP in a backwards direction to an alternate path in the backwards direction based on the switch over message.

17. (Original) The method of claim 16 further comprising the steps of: receiving a second message along the alternate path in the forward direction;

and allowing traffic to travel along the bi-directional LSP in the backward direction when a failure is no longer detected based on said second message.

18. (Original) A system for re-routing traffic comprising: an originating network device comprising: means for re-routing traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction; and means for transmitting a switch over message along the alternate path in the forward direction to a merging network device responsible for re-routing traffic traveling along the bi-directional LSP in a backward direction to the alternate path in the backward direction.

19. (Original) The system of claim 18, wherein the originating network device further comprises means for transmitting a second message, along the alternate path in the forward direction, to the merging network device to allow traffic to travel along the bi-directional LSP in the backward direction when a failure is no longer detected.

20. (Original) The system of claim 18 wherein the bi-directional LSP is comprised of an LSP carrying traffic in the forward direction and another LSP carrying traffic in the backward direction.

21. (Original) The system of claim 1 further comprising a merging network device which comprises means for receiving the switch over message and means for re-routing traffic traveling along the bi-directional LSP in the backwards direction to the alternate path in the backwards direction based on the switch over message.

22. (Original) The system of claim 21, wherein, the merging network device further comprises: means for receiving a second message along the

alternate path in the forward direction; and means for allowing traffic to travel along the bi-directional LSP in the backward direction when a failure is no longer detected based on said second message.

23. (Original) A merging network device comprising: means for receiving a switch over message; and means for re-routing traffic traveling along a bi-directional LSP in a backwards direction to an alternate path in the backwards direction based on the switch over message.

24. (Original) The device as in claim 23 further comprising: means for receiving a second message along the alternate path in the forward direction; and means for allowing traffic to travel along the bi-directional LSP in the backward direction when a failure is no longer detected based on said second message.

25. (Original) A system for re-routing traffic comprising: means for re-routing traffic traveling along a bi-directional LSP in a forward direction to an alternate path in the forward direction; means for transmitting a switch over message, along the alternate path in the forward direction, for re-routing traffic traveling along the bi-directional LSP in a backward direction; means for receiving the switch over message; and means for re-routing traffic traveling along the bi-directional LSP in a backwards direction to the same alternate path in the backwards direction based on the switch over message.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.